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Title : What drives Bottlenose dolphin (Tursiops truncatus) bowriding behavior in the Galveston Bay Estuary?

Category : Behavior

Student : M.A./M.S.

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Abstract : The development of novel behaviors in response to human activities indicates behavioral flexibility in animals. Bottlenose dolphin associations with shrimp boats exemplify opportunistic foraging in this species. A facet of the relationship between vessel traffic and dolphin group occurrence is bowriding behavior. Although negative impacts of boat traffic on bottlenose dolphin groups have been examined, quantification of positive associations is lacking. Bowriding by dolphin groups in the Galveston Bay Estuary (GBE) was quantified in relation to vessel type and direction, tidal currents and time of day. Shore-based observations were made from an elevated platform using a digital theodolite with Pythagoras providing feedback on vessel parameters. From October 2001 through February 2002, 98 hours of observation on 19 days provided 125 focal vessels; 52 were tankers. Thirty-four percent of the vessels had bowriders; tankers accounted for 81% of these events and were significantly preferred over other vessels ($p<0.05$). There was no significant preference with regard to overall direction or tidal currents. There was a significant lack of co-occurrence with vessels traveling south ($p< 0.01$) during the afternoon, but overall no significant co-occurrence with time of day. Vessel traffic is very intensive in the GBE due to the Port of Houston. The frequency of bowriding by dolphin groups indicates an impact on their movement patterns. Preference for tankers is interesting in that tankers have the most consistent movement patterns within the GBE, although not the greatest speed of movement. The lack of significant preference for direction, time of day or tidal currents suggests play behavior. Further analysis of the behavior of groups before and after bowriding will help to clarify whether bottlenose dolphins use the predictable tanker traffic in the GBE as energy efficient transport.